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ABSTRACT

A discussion of Bolanci (also Bole or Bolewa), a West Chadic language spoken in northeastern Nigeria, focuses on one component of the system of complementation, the form "na." This form has an inherent semantic capable of influencing the meaning of sentences in which it is embedded, specifically, when present in a complex sentence, communicating evidential meanings distinct from those communicated by analogous sentences without the form. "Na" is examined in combination with cognitive-utterance verbs and perception verbs and in direct versus indirect speech. It is concluded that "na" introduces propositional content that is not directly witnessed and cannot be directly validated by the speaker and cannot be seen as a functor devoid of semantic content. (MSE)

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The Semantic Contribution of Complementizers and Complementation Type: The Case of Bolanci *na**

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1. INTRODUCTION. In this paper I will investigate one component of the system of complementation in Bolanci[1] -- the complementizer *na*. I will argue that this complementizer has an inherent semantics capable of influencing the meaning of sentences in which it is embedded. Specifically, I will show that the presence of the complementizer *na* in a complex sentence communicates evidential meanings distinct from those communicated by analogous sentences lacking the complementizer. By way of illustration, let us compare the following minimal pair, which will get a fair amount of our attention in this paper. Note that in the surface syntax these sentences differ only in the presence versus absence of the complementizer:[2]

(1) a. *n* *innaa-wo* *anbara karuu* *kom.*
1.SG.NOM see-PERF hunter slaughter-PERF cow
'I saw the hunter slaughter a cow.'

b. *n* *innaa-wo* *na* *anbara karuu* *kom.*
1.SG.NOM see-PERF COMP hunter slaughter-PERF cow
'I saw that the hunter had slaughtered a cow.'

Both sentences contain an assertion: The hunter slaughtered a cow. Sentence 1a indicates that the speaker's source of evidence for this assertion is direct visual perception, as suggested by the English translation. Sentence 1b indicates that the source of evidence is indirect. The source of evidence in 1b, as I will argue later in the paper, is after-the-fact inference: The speaker has inferred the occurrence of the slaughtering event via its accessible consequences. The sentences in 1 show that the complementizer *na* codes the evidential basis on which the speaker asserts the proposition 'the hunter slaughtered a cow'. The data presented in 1 indicate that an appropriate analysis of the complementizer *na* must make reference to the meanings that it contributes to assertions in which it is embedded.

The present analysis challenges traditional assumptions regarding the functional import of complementizers. Structuralist approaches have generally regarded complementizers as grammatical morphemes devoid of semantic content, whose main function is to signal the subordinate status of the following embedded clause and/or to signal the type of complement. This assumption is succinctly captured by Noonan 1985, who writes, "Complement types often have associated with them a word, particle, clitic, or affix whose function it is to identify the entity as a complement. Such forms are known as complementizers" (pp. 44-5). It is clear from 1 that the complementizer *na* signals more than simply the subordinate status of the complement clause. Note, further, that the complements in 1a and 1b, as I will explain later in the paper, have different structures, i.e., they are different complement types. In 1a, the NP *anbara* is a constituent of the matrix clause -- the direct object of the verb 'see'. In 1b, *anbara* is a constituent of the embedded clause -- its subject. If it were true that the function of complementizers is simply "to identify the entity as a complement" or to identify the type of complement, why

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is it that we do not have a complementizer to code this function in 1a? And if we do not need a complementizer to signal the type of complement in 1a, why do we need one in 1b?

Example 1 raises another theoretical and empirical issue. A substantial number of studies on complementation have claimed that the type of complement clause or the choice of a complementizer is largely predictable from and triggered by the matrix verb. Thus Noonan writes, "Complementation is basically a matter of matching a particular complement type to a particular complement-taking predicate. The basis of this matching is the semantic relation between predicate and complement that is inherent in the meaning of the CTP" (1985:90-91). Dirven 1989, who defines the term 'complementizer' as the syntactic form of the verb in the complement clause, echoes Noonan's view: "From the point of view of language learning, complementation then means coming to grips with eight different complementisers in English.... The use of the correct complementisers is mainly a question of matching the semantics of each complementiser with the semantics of the governing verb (or adjective or noun) in the main clause and with the type of verb or other elements in the complement" (p. 113). Formal syntactic approaches that have attended to semantic aspects of complementation have also generally ascribed the choice of the complementizer to the main-clause verb. One of the early examples of this mode of analysis can be found in Rosenbaum 1967.

Thus, in both syntactic and semantic analyses, complement and complementizer choice is dictated by the requirements of the main verb. An early counterproposal is found in Bolinger 1968, who states that complementizers have semantics of their own: "the complementizers are chosen for their own sake, not as a mechanical result of choosing something else." Example 1 above illustrates Bolinger's point. In both sentences, the main-clause verb ('saw') is the same, yet the complements are different. In one we have a complementizer, and in the other we do not. Furthermore, the embedded complements in these two sentences have different syntactic structures. This point will be clarified later in the paper.

To varying extents, Bolinger 1972, Bresnan 1979, Kirsner & Thompson 1976, Givón 1980, Ransom 1986, Frajzyngier & Jasperson 1991, and Frajzyngier (in press) are elaborations on Bolinger's proposal. The aim of the present study is to explore the semantics of the complementizer *na* in the spirit of these latter studies. It is the goal of this paper to show that the complementizer *na* is an autonomous grammatical functor whose semantics may either *reflect* that of the main verb or *modulate* the sentence meaning. That grammatical elements effect meaning shifts is not a controversial claim. Among other studies mentioned below, Talmy 1987 is primarily concerned with providing evidence for precisely this claim.

The meanings that *na* contribute largely fall under the rubric of epistemic modality, which Lyons 1977 defines as follows: "Any utterance in which the speaker explicitly qualifies his commitment to the truth of the proposition expressed by the sentence he utters, whether this qualification is made explicit in the verbal component...or in prosodic or paralinguistic component, is an epistemically modal, or modalized, utterance" (p. 797). Palmer's 1986 construal of epistemic modality overlaps with Lyons': "the term 'epistemic' should apply not simply to modal systems that basically involve the notions of possibility and necessity, but to any modal system that indicates the degree of commitment by the speaker to what he says. In particular, it should include evidentials such as 'hearsay' or 'report' (the Quotative) or the evidence of the senses" (p. 51). Palmer's definition makes clear that evidential functions such as the ones indicated in 1 are part of the system of epistemic modality. In this paper, both definitions of epistemic modality will be utilized; however, Palmer's will prove more relevant because it makes explicit reference to the evidential notions of quotative and hearsay, notions which are elaborated later in the paper.

A careful examination of the interaction of *na* with various verb classes shows that *na* both mirrors and influences its semantic context. In the remainder of this paper, I will examine the interaction of *na* with various verb classes. Section 2 introduces what Givón 1980 refers to as cognitive-utterance verbs. These verbs by their very nature introduce complements representing opaque contexts: propositions which are depicted as beliefs of some referent (Fauconnier 1985). With these verbs, the presence of *na* is optional and does not carry a modal function. In sections 3, 4, and 5, I will show that the function of *na* is extended from that of introducing opaque contexts to that of coding evidential distinctions. The strongest evidence about the evidentiary function of *na* comes from the data on sensory verbs, and thus §3, which examines the interaction of *na* with sensory verbs, constitues the bulk of this paper. Here, *na* codes the source of evidence. The facts presented in §3 about the complementizer's being associated with indirect evidence and its absence being associated with direct evidence after verbs of perception is by no means unique to Bolanci. In a typological study of the interaction of complementizers with perception verbs, Taylor 1991 showed that this same dichotomy exists in at least 13 other Chadic languages. The English equivalent of *na*, i.e. 'that', has well been established to perform a similar function. Section 4 examines the interaction of *na* with complements representing direct and indirect speech. Here, the absence of *na* indicates directly witnessed speech, and the presence of *na* indicates a reconstructed utterance (reported speech). Section 5 looks at the interaction of *na* with the verb 'to know'. Here, *na* codes the source and possibly strength of evidence. Section 6 presents the conclusions. The unifying generalization about the functions of *na* is that it indicates that the propositional content it introduces cannot be directly validated by the speaker.

2. THE COMPLEMENTIZER NA WITH COGNITIVE-UTTERANCE VERBS. As can be seen in the following declarative sentences, Bolanci has SVO word order. Embedded clauses (sentential complements) are introduced by the complementizer *na*. These finite embedded clauses are the direct objects of the matrix clause verbs *poro* and *kono*.

(2) *ita* *poro* *(na)* *yusup* *anbara.*
3.F.SG.NOM said (COMP) Yusup hunter
'She said that Yusup is a hunter.'

(3) *isin* *kono* *(na)* *ayša* *karuu* *kom.*
3.M.SG.NOM think (COMP) Aysha slaughter-PERF cow
'He thinks that Aysha slaughtered a cow.'

After some verbs, notably verbs of saying (e.g. 'say', 'tell') and verbs of cognition (e.g. 'think', 'believe'; see §5 for a discussion of 'know'), the presence of the complementizer *na* is optional. This optionality is indicated in parentheses in the above examples. There is no discernable difference in meaning between the *na*-ful and *na*-less sentences in 2 and 3. These sentences do not contain any modal verbs, modal adjectives, or modal adverbs and thus cannot be discussed in terms of modality. The speaker who utters these sentences does not qualify her/his commitment to the truth of the propositions expressed in the embedded clauses. The speaker who utters these sentences divests her-/himself of responsibility for the factuality of these propositions, and thus these sentences fall outside our definition of epistemic modality in §1. To use Lyons' terminology, these clauses are 'epistemically non-modal'. The speaker, however, is committed to the factuality of the main-clause propositions 'she said X' and 'he thinks Y', where X and Y stand for the embedded propositions. These two assertions are straightforwad statements of fact. A

speaker who utters these commits her-/himself to the truth of these assertions by virtue of uttering them (cf. Frajzyngier 1987).

Because higher predicates such as 'say' and 'believe' are "*about* the truth of the [complement] proposition, regardless of whether that truth value is certain or uncertain," Ransom 1986 analyzes them as Truth Modality predicates. She illustrates her point by examples from English in which the expression 'be true' may redundantly be inserted. Thus, for Ransom the following two sentences do not differ in meaning. The expression 'be true' does not affect the truth modality of the complement proposition:

(4) I believe that Dawn is a female
(5) I believe that it is true that Dawn is a female.

In a similar fashion, the complementizer *na* is redundant in examples 2 and 3. The optionality of *na* in the following examples provides additional evidence that after a cognitive-utterance verb, the presence or absence of *na* does not affect the modality of the sentence, i.e., *na* does not carry a modal function:

(6) *ita* *poro* *(na)* *isin* *karuu* *kom.*
3.F.SG.NOM said COMP 3.M.SG.NOM slaughtered cow
'She said that he slaughtered a cow.'

(7) *ita* *tabbutu* *(na)* *isin* *anbara.*
3.F.SG.NOM believe COMP 3.M.SG.NOM hunter
'She believes that he is a hunter.'

(8) *isin* *kono* *(na)* *ita* *ndii* *gaa* *gomaa* *nzono.*
3.M.SG think COMP 3.F.SG went PREP market yesterday
'He thinks that she went to the market yesterday.'

The complementizer *na* in these sentences introduces embedded opaque contexts, just as the complementizer 'that' often does in English (cf. Frajzyngier & Jasperson 1991). These contexts make it possible to get de dicto (linguistic) readings for the embedded clauses as opposed to de re (reality) readings. (I will say more about these two notions in §3.) We can illustrate this point about opaque contexts by invoking the logical operations of sentential exportation (SE) and existential generalization (EG) to see the kind of inferences that can be drawn from 2 and 3. The asterisk in the following examples indicates invalid inferences:

(9) She said that Yusup is a hunter,
a. therefore, she said that Yusup is a hunter (SE)
b. therefore, there exists someone (she) such that she said that Yusup is a hunter (EG)
c. *therefore, Yusup is a hunter (SE)

(10) He thinks that Aysha slaughtered a cow,
a. therefore, he thinks that Aysha slaughtered a cow (SE)
b. therefore, there exists someone such that he thinks that Aysha slaughtered a cow (EG)
c. *therefore, Aysha slaughtered a cow (SE)
d. *therefore, there exists someone (Aysha) such that he thinks that she slaughtered a cow (EG)

The application of either SE or EG fails to produce valid inferences (c-d) when these operate on the embedded clause; but when they operate on the main clause, they do produce valid inferences (a-b). With the invalid inference in 10d, EG fails because it infers from the domain de dicto about elements (which may not exist) in the domain de re. In the invalid inferences in the (c) versions, SE fails because the reality of the embedded propositions cannot be ascertained, i.e., the propositional content cannot be validated. The observations about the invalidity of the the inferences in (c-d) involving the embedded clauses are intended to illustrate the statement made earlier that the speaker who utters 2 or 3 divests her-/himself of responsibility for the factuality of the embedded propositions.

In its capacity to introduce opaque contexts, *na* is redundant with cognitive-utterance verbs; this is evinced by the optionality of *na* in all the examples in this section. Here, modal distinctions are not possible because the factuality status of the embedded clauses is not at issue. With this class of verbs, *na* does not make any semantic contribution to sentences; it does not signal evidential or any other modal functions. Here, *na* simply mirrors or reflects the semantics of the complement-taking predicate. This fact about *na*'s not carrying a modal function after cognitive-utterance verbs is not unique to Bolanci. There is a vast amount of literature on the optionality of the equivalent English complementizer 'that' with these verbs (although cf. Bolinger 1972, Wierzbicka 1988, Langacker 1991).

Frajzyngier 1991 shows that when the (perhaps related) complementizer *nə* in Mupun (Chadic) occurs after verbs of saying and verbs denoting mental activities, the complementizer *nə* carries no modal function, but that when *nə* follows verbs of perception, it indicates indirect evidence. In the next section, I will argue that this situation also obtains for the Bolanci complementizer *na*.

3. THE COMPLEMENTIZER NA WITH PERCEPTION VERBS. Following Frajzyngier 1991, I hypothesize that the function of the complementizer *na* in Bolanci is to mark the embedded clause it introduces as belonging to the domain of speech (domain de dicto) as opposed to the domain of reality (domain de re). This is true analytically, i.e., it is true by virtue of the fact that this complementizer follows verbs of saying. The complementizer does not carry any information about the epistemic value of the embedded clause when occurring after a verb of saying. However, the complementizer is associated with complements of verbs of saying, which have an inherent epistemic value, such that information obtained through speech (hearsay) is generally less reliable than information obtained through direct perception (see, hear). The complementizer *na* acquires the same epistemic value when used with verbs of perception as the verb that triggers the complementizer's presence, i.e. the verb 'to say'. The complementizer *na* is now available to serve a function of indicating less than direct evidence when used with other verbs, including verbs of perception. The complementizer *na*, which is associated with verbs of saying, is used to indicate inference because of the strong sense that information obtained through speech is less reliable than information obtained through direct perception. When *na* occurs after a verb of perception, it functions as a marker of indirect evidence. Witness the following examples:

(11) *n* *konnaa-wo* *na* *isin* *karuu* *kom.*
1.SG.NOM hear-PERF COMP 3.M.SG.NOM slaughtered cow
'I heard that he had slaughtered a cow.'

(12) *n* *konnaa-nii-wo* *karuu* *kom.*
1.SG.NOM hear-3.M.SG.ACC-PERF slaughtered cow
'I heard him slaughter a cow.'

(13) *n* *innaa-wo* *na* *isin* *karuu* *kom.*
1.SG.NOM see-PERF COMP 3.M.SG.NOM slaughter cow
'I saw that he had slaughtered a cow.'

(14) *n* *innaa-nii-wo* *karuu* *kom.*
1.SG.NOM see-3.M.SG.ACC-PERF slaughtered cow
'I saw him slaughter a cow.'

In 11, the subject did not actually hear the event or action of slaughtering; her/his evidence is indirect -- hearsay. She/he was TOLD about the slaughtering event. In 12, on the other hand, the subject witnessed the event firsthand. The evidence for these claims is that it is possible for 15 to felicitously precede or follow 12, but it is not possible for 15 to precede or follow 11.

(15) *lookaši* *laa* *n* *erno* *ga* *boi* *boo* *bin*
time REL 1.SG.NOM stand PREP back mouth room
'when I was standing behind the door'

When the clause in 15 immediately precedes 12, it creates a context compatible with a direct perception interpretation for 12. In contrast, it is difficult to establish a causal connection between the propositions in 11 and 15; that is to say, it is not clear what causal relation there exists between one's standing behind the door and one's hearing ABOUT the slaughtering event. This difficulty in establishing a causal relation between 11 and 15 is in fact supported by the interpretation the native speaker gave to these strings. The native consultant dismissed as semantically dubious the sentence in 11 when preceded or followed by 15. In this situation, the translation he rendered for this string was 'When I was standing behind the door, I heard him that he slaughtered a cow', and when prompted to repeat the translation, he rendered 'When I was standing behind the door, I heard him SAY that he slaughtered a cow'. While these renditions are a little odd, they reinforce the claim that the subject in 11 does not actually hear the event or action of slaughtering but rather hears ABOUT it. Similarly, 11 can be felicitously followed by the string in 16, while 12 cannot, hence the infelicity of 17:

(16) *inko* *ayša* *por-naa-wo*
because Aysha tell-1.SG.ACC-PERF
'because Aysha told me (so)'

(17) **n* *konnaa-nii-wo* *karuu* *kom*
1.SG.NOM hear-3.M.SG.ACC-PERF slaughtered cow
inko *ayša* *por-naa-wo*
because Aysha tell-1.SG.ACC-PERF
for: 'I saw him slaughter a cow because Aysha told me (so)'

The reason for the infelicity of 17 is that there appears to be a contradiction between the propositions in the two clauses. The word *inko* ('because') establishes a causal relation between the two clauses, such that the *inko* clause provides a reason for the subject's

knowledge of the slaughtering event in the preceding clause. However, this reason is specified as hearsay, and this contradicts the firsthand, direct perception claim to knowledge in the first clause.

What should at least be clear from the preceding examples is that the main-clause perception verb 'to hear' followed by the complementizer *na* indicates hearsay evidence. I will therefore call this complementizer a de dicto complementizer because of the function it performs in transferring the evidence in the embedded clause from the domain of reality to the domain of speech, from direct evidence to indirect evidence (in this case hearsay; but see below for other types of indirect evidence.). It will be shown below that the mere absence of *na* after a main-clause perception verb does not necessarily indicate direct evidence, but that when *na* is present it always indicates indirect evidence. Thus, to falsify the hypothesis that *na* is a de dicto complementizer, one should not look for data where *na* is absent but rather where *na* is present. The simplest way to falsify the claim is to find data where *na* follows a main-clause perception verb to indicate direct evidence. Thus, the hypothesis would evidently be falsified if one encountered in Bolanci sentences such as the ones in 11 and 13 (reproduced as 18 and 19) but with a direct perception interpretation:

(18) *n konnaa-wo na isin karuu kom*
I heard COMP 3.M.SG slaughtered cow
for: 'I heard him slaughter a cow.'

(19) *n innaa-wo na isin karuu kom*
I saw COMP 3.M.SG slaughter cow
for: 'I saw him slaughter a cow.'

When one compares the *na*-ful, indirect evidence sentences in 20 and 21 with the *na*-less, direct perception sentence in 22, it becomes more obvious what kind of function the complementizer *na* encodes. Note the spontaneous use of 'realized' in the translation of 20, an inference verb by definition. Example 20 is very similar to 13. Examples 13 and 20 were elicited in two different sessions separated by several days.

(20) *n innaa-wo na isin karuu kom.*
I see-PERF COMP 3.M.SG.NOM slaughtered cow
'I realized that he had slaughtered a cow.'

(21) *n innaa-wo na anbara karuu kom.*
1.SG.NOM see-PERF COMP hunter slaughter-PERF cow
'I saw that the hunter had slaughtered a cow.'

(22) *n innaa-wo anbara karuu kom.*
1.SG.NOM see-PERF hunter slaughter-PERF cow
'I saw the hunter slaughter a cow.'

Examples 20 and 21 require some immediate elaboration; however, since the same points can be made for both of them, I will focus on 20. Example 20 is relevant for two reasons. The first is that *na* coming here after the sensory verb 'to see' indicates indirect evidence, which statement is also true of 21. However, the nature of this indirect evidence is different from the indirect evidence that is indicated by *na* when it follows the sensory verb 'to hear'. The complementizer *na* coming after the verb 'to hear' indicates hearsay or reported evidence, which is one kind of indirect evidence. This interpretation is not available for the verb 'to see' because of the inherent meaning of this verb. To state the

obvious, hearsay or reported evidence, which is obtained through the auditory mode, cannot be reconciled with evidence obtained through the visual mode; these are two independent and incompatible modes of evidence. Thus, it would presumably be as odd in Bolanci as it is in English to say something like, 'I saw that he slaughtered a cow because I was told so'. So, then, what is the nature of evidence available to the speaker who utters 20? I would like to argue that the source of this evidence is what is called abductive (after-the-fact) inference. Abductive inference is reached by reasoning from results to causes. Abductive inference is one type of indirect evidence, a type which is less direct than evidence involving direct perceptual witnessing of an event (Slobin & Aksu 1982). Sentence 20 can be appropriatley said when, for example, the speaker had just seen physical evidence consistent with a cow-slaughtering event but had not witnessed the event firsthand. It is thus appropriate to follow 20 immediately by the clause in 23, which denotes a resultant situation that is consistent with a cow-slaughtering event, i.e. blood on the floor. The clause in 23 provides the right kind of evidence to the speaker of 20, i.e. evidence consistent with an after-the-fact inference:

(23) *inko ga dom kirkir ga ko olli gaa bin.*
because PREP blood all PREP top ground PREP room
'because there was blood all over the floor.'

(24) *n innaa-wo na isin karuu kom, inko ga dom kirkir ga ko olli gaa bin.*
'I realized that he had slaughtered a cow because there was blood all over the floor.'

If the speaker witnessed the slaughtering event firsthand, i.e., if she/he had direct evidence for the event, she/he cannot use sentence 20 because the evidence in 20 is arrived at by inference. Instead, in this situation one must use a direct perception, *na*-less sentence like 25 (which is a repeat of 14):

(25) *n innaa-nii-wo karuu kom.*
1.SG.NOM see-3.M.SG.ACC-PERF slaughtered cow
'I saw him slaughter a cow.'

As one would expect, 25 cannot be followed by 23 because 23 imposes on the resultant string an indirect evidence interpretation that contradicts 25, hence the infelicity of 26:

(26) **n innaa-nii-wo karuu kom inko ga dom kirkir ga ko olli gaa bin*
'I saw him slaughter a cow because there was blood all over the floor'

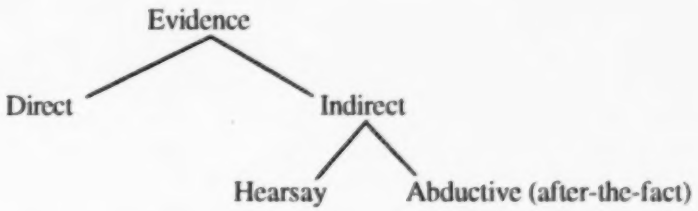
Also as one would expect, the direct perception sentence 25 can be felicitously followed by a clause that is consistent with a direct evidence interpretation. Thus, it is appropriate to follow 25 by either 27 or 28:

(27) *inko n innaa-ni-wo ii-wo ii.*
because 1.SG.NOM see-3.M.SG-PERF do-PERF it
'because I saw him do it.'

(28) *inko* *n* *ga* *isin*
because 1.SG.NOM PREP 3.M.SG
'because I was with him'

The following diagram will help to conceptualize the kinds of evidence we have looked at up to this point:

(29)



The distinction between direct perception and after-the-fact inference involving the sensory verb 'to see' can also be observed in English. Take for instance the following two examples discussed in Kirsner & Thompson 1976:

(30) Len saw that Margie played croquet.
(31) Len saw Margie play croquet.

Sentence 30, with the 'that' clause after the verb 'to see', can be easily said in a context where Len saw nothing but croquet balls and mallets, whereas 31 can be said only if Len saw Margie with his own eyes while she was playing a game of croquet. Kirsner and Thompson provide the following examples to show the semantic contrast between 'sensory verb complements', which communicate physical perception, and 'that' clauses, which involve interpretation or indirect deduction:

(32) Peering at the mallets, balls, and wickets strewn about the garden, Holmes could see that the Duchess played croquet.
(33) ? Peering at the mallets, balls, and wickets strewn about the garden, Holmes could see the Duchess play croquet.

Example 20, where the expected 'saw' gets the reading 'realized', is relevant for another reason. The important point here is not simply that 'saw' becomes 'realized', for this may just be an artifact of the translation -- after all, the identical sentence in 13 maintains the word 'saw'; seeing is also involved in 20, but it is just sighting of results not of the causal event. Example 20 is important from a theoretical point of view because it illustrates the claim that grammatical morphemes (in this case *na*) often have the ability to influence or alter the inherent meanings of lexical items with which they cooccur (i.e. *innaa*). Talmy 1987 describes this phenomenon in terms of a 'conversion' or 'shift' operation that a grammatical form performs on a neighboring lexical item's referent to bring it into accord with the meaning of a construction. My claim here is that the referent of the lexical item *innaa* in 20 is 'converted' by *na* from the cognitive domain of visual perception to that of reasoning, notwithstanding visual perception plays a role in this reasoning. This conversion takes place in order to bring the referent of *inna* into accord with the indirect evidence meaning of the construction as a whole. Frajzyngier 1985 shows, in the context of a discussion of stative and non-stative verbs, that if a grammatical morpheme is productive in a language (such as the English progressive), that morpheme can be used to

change the inherent semantic features of lexical items in a construction (e.g. changing a stative verb to non-stative). In specific reference to complementizers and complementation type, Givón 1980 shows how in several languages, including English, a complementizer or a complement type has the ability to alter the meanings of main-clause predicates, thus contributing to the polysemy of these predicates. A simple example involving complementation type in English is the two different meanings for the lexial item 'agree' in the following two sentences:

(34) He agreed that it would be a good idea.
(35) He agreed to go.

Here the claim is that the form the complement clause takes determines the meaning of 'agree'. Similarly, for the Bolanci sentence 20, the claim is that it is the presence of the complementizer *na* that gives the sentence its indirect observation modality.

As was hinted earlier, while it is true that when *na* occurs after a verb of perception it indicates that the evidence for the information expressed in the embedded clause is indirect, as in 11, its absence per se does not necessarily indicate that the evidence is direct. Witness the following example, which, except for the absence of the complementizer, is identical to 11. Examples 11 and 36 have the same meaning. In 36, the evidence for the event of slaughtering is also unwitnessed -- hearsay. Compare these examples with 37, where the evidence is direct perception:

(36) *n konnaa-wo isin karuu kom.*
1.SG.NOM hear-PERF 3.M.SG.NOM slaughtered cow
'I heard that he had slaughtered a cow.'

(37) *n konnaa-nii-wo karuu kom.*
1.SG.NOM hear-3.M.SG.ACC-PERF slaughtered cow
'I heard him slaughter a cow.'

Whereas it is true that in the direct perception sentence in 37 the complementizer is absent, it is not the absence per se of the complementizer that gives this sentence its direct perception interpretation. The absence of the complementizer in 37 seems to be a by-product of what in classical TG terminology is known as subject-to-object raising: The subject of the embedded clause in 37 is raised to object position in the main clause. Notice that the syntactic structures in 37, on the one hand, and in 11, 20, and 36, on the other, are different. In 37, the embedded clause has no overt subject, and in the main clause the direct object is *-nii* (3.M.SG.ACC), suffixed onto the matrix verb. In contrast, in 11, 20, and 36, there is no NP direct object (the direct object is the whole of the embedded clause -- the complement clause), and the embedded clauses all have overt subjects (*isin*). That 37 has a raised object is evinced by the fact that a sentence cannot have both a direct object in the main clause and a subject in the embedded clause, hence the ungrammaticality of the following strings:

(38) **n konnaa-nii-wo (na) isin karuu kom*
for: 'I heard him slaughter a cow'
or 'I heard that he slaughtered a cow.'

(39) **n innaa-nii-wo (na) isin karuu kom*
for: 'I saw him slaughter a cow'
or 'I saw that he slaughtered a cow.'

(40) *n *innaa-wo yusup isin karuu kom*
for: 'I saw Yusup slaughter a cow'
or 'I saw that Yusup slaughtered a cow.'

(41) *n *innaa-nii-wo yusup karuu kom*
for: 'I saw Yusup slaughter a cow'
or 'I saw that Yusup slaughtered a cow.'

(42) *n *innaa-nii-wo isin karuu kom*
for: 'I saw him him slaughter a cow'
or 'I saw that he slaughtered a cow.'

It is noteworthy that on a different occasion the consultant admitted the string in 38 only if interpreted as 'I heard from him that he slaughtered a cow' or 'I heard him SAY that he slaughtered a cow'. I think that it is no accident that 11 and 38 were interpreted as having the verb 'say', even when in fact these sentences do not contain this verb overtly. This observation further reinforces the claim that the primary function of the complementizer *na* in Bolanci is to mark the embedded clause as belonging to the domain of speech. These facts provide additional support for Frajzyngier 1991, who reports on a similar phenomenon involving Mupun.

The verb 'to see' behaves similarly to the verb 'to hear'. Direct evidence involving the verb 'to see' is also indicated by a structure involving an accusative NP:

(43) *n innaa-nii-wo karuu kom.*
1.SG.NOM see-3.M.SG.ACC-PERF slaughtered cow
'I saw him slaughter a cow.'

(44) *n innaa-wo anbara karuu kom.*
1.SG.NOM see-PERF hunter slaughter cow
'I saw the hunter slaughter a cow.'

The evidence that the subject of the matrix verb in 43 and 44 actually saw the cow being slaughtered is the fact that both 43 and 44 can felicitously be followed by the string in 45:

(45) *inko n ga isin*
because 1.SG.NOM PREP 3.M.SG
'because I was with him'

Example 44 (which is identical to 1a & 21) is the only instance we have so far of an accusative nominal NP. We can use the test of complementizer insertion to see whether the NP *anbara* is in fact a constituent of the main clause. The complementizer *na* can only be inserted before *anbara* in 44, never after it. We conclude that an accusative NP in the main clause cannot coincide with the presence of *na*; that is to say, *na* is incompatible with the complement type containing an accusative NP which is also the agent of the embedded clause:

(46) *n *innaa-wo anbara na karuu kom*
for: 'I saw the hunter slaughter a cow'
or 'I saw that the hunter slaughtered a cow.'

(47) **ita konnaa-nii-wo na karuu kom*
for: 'She heard him slaughter a cow'
or 'She heard that he slaughtered a cow.'

(48) **ita innaa-nii-wo na karuu kom*
for: 'She saw him slaughter a cow'
or 'She saw that he slaughtered a cow.'

On the other hand, if *anbara* is analyzed as a constituent of the embedded clause (its subject), we would expect that the complementizer may grammatically precede it. This is in fact the case, as can be seen in 49, but with an important difference in meaning from 44:

(49) *n innaa-wo na anbara karuu kom.*
1.SG.NOM see-PERF COMP hunter slaughter cow
'I saw that the hunter had slaughtered a cow.'

When contrasted with 44, example 49 clearly shows the function of the complementizer: In 49, *na* functions as the sole marker of indirect evidence.

One may conclude from the preceding discussion that for verbs of perception, direct evidence is indicated by a structure containing an accusative NP in the matrix clause with the concomitant absence of the complementizer, while indirect evidence is indicated by the presence of the complementizer. Thus, where evidential distinctions are possible, the presence of *na* is meaningful per se. This contrasts with the opacity-introducing function of *na* with cognitive-utterance verbs where evidential distinctions could not be made. There, *na* is redundant.

4. DIRECT VERSUS INDIRECT SPEECH. Corroborating evidence that the primary function of the complementizer *na* is to mark evidence as indirect is provided by data from direct (quoted) speech and indirect (paraphrased) speech. In this domain, the function of this complementizer has evidently been extended to marking the speaker's confidence about the validity of the statements she/he is making. Specifically, if a correlation can be found between the presence versus absence of the complementizer and direct versus indirect speech, one would predict (consonant with the hypothesis that the purpose of this complementizer is to mark evidence in the subordinate clause as indirect) that when the language structure makes a distinction between direct and indirect speech, the absence of the complementizer would be associated with the former, whereas the presence of the complementizer would be associated with the latter. To a great extent, this prediction is borne out by the data. In the following examples, after a verb of saying in the main clause, quoted speech is not introduced by the complementizer *na*, whereas indirect/paraphrased speech is.

(50) a. *n por-su nde-zi.*
1.SG.NOM told-3.PL take.away-body
'I told them, "go."'

b. *n por-su na nde-zi.*
1.SG.NOM told-3.PL COMP take.away-body
'I told them to go.'

(51) a. *ita* *por-ni* *goj̃ji-to* *kare* *sa.*
3.F.SG.NOM told-3.M.SG buy-3.F.SG clothes NEG
'She told him, "don't buy her any clothes."'

b. *ita* *por-ni* *na* *goj̃ji-to* *kare* *sa.*
3.F.SG.NOM told-3.M.SG COMP buy-3.F.SG clothes NEG
'She$_i$ told him not to buy her$_{i/j}$ any clothes.'

In 50b and 51b, the complementizer *na* is the sole marker of indirect speech. Its absence in 50a and 51a marks the speech as direct. A speaker who uses 51a, for example, is in effect conveying a high degree of confidence in the validity of the quote. She/he is indicating her/his belief that these are the exact words uttered. (Whether what is quoted is in fact accurate is a totally different matter. The important point is that the speaker is conveying the *belief* that it is accurate.) A speaker who uses 51b, on the other hand, is indicating that she/he is only paraphrasing what was said.

The use of *na* with direct and indirect speech unifies with the account presented in the previous section about the use of *na* with perception verbs: Directly witnessed events cannot be presented by *na*, whereas indirectly witnessed or reconstructed events are presented as such by the use of *na*.

Having said that, it should be pointed out that there are two examples in the data where direct quotes after the verb *poro* 'to say' are preceded by the complementizer *na*. One such example is:

(52) *ita* *por-ni* *na* *goj̃ji-no* *kare* *sa.*
3.F.SG.NOM told-3.M.SG COMP buy-1.SG clothes NEG
'She told him, "don't buy me any clothes."'

While this example may appear to contradict the arguments made about 50 and 51 above, it does not necessarily negate or falsify them. It may simply be the case that *na* preceding the direct quote in 52 is utilized as a device for the speaker to in effect introduce the quote as tentative/imagined/constructed not as a genuine/actual quote. That is to say, the quote in 52 may not be conveying the speaker's belief that this is exactly what was uttered, but rather the speaker imagines the quote to have been similar in content to the one reported, and the speaker indicates by the use of *na* that she/he is less than fully committed to the quote. It is not possible, however, to verify this hypothesis from the data available. One would presumably need larger pieces of discourse (e.g. narrative, story-telling, etc.) to verify such a hypothesis.

The reader will have by now discerned an apparent inconsistency. It will be recalled from §2 that *na* after the verb *poro* 'say' is optional, entailing no meaning difference. However, the present section shows that the absence versus presence of *na* after the verb *poro* signals direct versus indirect speech, a significant semantic distinction. This apparent contradiction can be resolved if we view the optionality of *na* as applying in the context of those embedded clauses which are instances of indirect/reported speech. This means that the mere absence of *na* after the verb *poro* does not entail that the following embeddded clause will be a direct quote. However, if the speaker chooses to use a direct quote, then she/he must not use *na* to introduce that quote (example 52 being an exception).

5. THE VERB *KNOW*. The relevance of the verb 'to know' (*mono*) for our investigation is the observation that has been made in some other languages that there exist correlations

between this verb and complementizers. The nature of this correlation is the following, again in keeping with the hypothesis that the purpose of the complementizer is to mark evidence in the subordinate clause as indirect: The absence of the complementizer is associated with knowledge that results from direct experience, and the presence of the complementizer is associated with knowledge attained through indirect experience. For example, Frajzyngier (in press) finds two divergent interpretations for the verb *sèn* 'to know' in Lele (Chadic) depending on what complementizer(s) follow this verb. Frajzyngier first examines the interaction of two complementizers with perception verbs and determines that the complementizer *gó* is the direct perception complementizer and the complementizer *ná* is the indirect evidence complementizer. He then finds that when the complementizer *gó* follows the main clause verb *sèn* 'to know', it indicates that the source of knowledge is the speaker's personal experience. On the other hand, a sequence of the two complementizers *gó+ná* occurring after *sèn* indicates that the source of knowledge is hearsay. It will be recalled from §3 that in Bolanci, unlike in Lele, direct perception is indicated by the absence of the complementizer after a verb of perception. Like Lele *ná*, Bolanci *na* is the indirect evidence complementizer. While my data on the Bolanci verb *mono* 'to know' occurring with the complementizer *na* do not provide conclusive evidence about the source of knowledge, the data do appear to suggest the dichotomy said to exist in Lele in connection with the verb 'to know'.

A frequency count of dozens of complex sentences involving the verb *mono* 'to know' suggests that, all other factors remaining constant, when sentences have a direct/personal experience interpretation, it is more likely for the complementizer to be absent than to be present. On the other hand, when the source of knowledge is hearsay, it is more likely for the verb *mono* to be followed by *na*. That is to say, it is more likely to find *na*-less sentences like 53-55 than to find their *na*-ful counterparts, and it is also more likely to find *na*-ful sentences like 56 and 57 than it is to find their *na*-less counterparts. The source of knowledge in 53-55 is the speaker's personal experience. In 56 and 57, the source of knowledge is hearsay. (Note here that abductive inference (which was shown with perception verbs to be a type of indirect evidence) in 54 counts as direct evidence because the source of knowledge is direct/personal experience.)

(53) *n* *mono* *isin* *karuu* *kom,*
1.SG.NOM know 3.M.SG.NOM slaughtered cow,
inko *n* *innaa-wo* *ii.*
because 1.SG.NOM see-PERF it
'I know that he slaughtered a cow because I saw it (i.e. the action of slaughtering).'

(54) *n* *mono* *yusup* *karuu* *ɓarke,*
1.SG.NOM know Yusup slaughtered goat,
inko *ga* *dom* *kirkir* *ga* *ko* *olli* *gaa* *bin.*
because PREP blood all PREP top ground PREP room
'I know that Yusup slaughtered a goat because there was blood all over the floor.'

(55) *n* *mono* *yusup* *karuu* *ɓarke,*
1.SG.NOM know Yusup slaughtered goat,
inko *n* *innaa-ni-wo* *ii-wo* *ii.*
because 1.SG.NOM see-3.M.SG-PERF do-PERF it
'I know Yusup slaughtered a goat because I saw him do it.'

(56) *n* *mono* *na* *isin* *karuu* *kom.*
1.SG.NOM know COMP 3.M.SG.NOM slaughtered cow,
inko *isin* *por-naa-wo.*
because 3.M.SG.NOM tell-1.SG-PERF
'I know that he slaughtered a cow because he told me so.'

(57) *n* *mono* *na* *yusup* *karuu* *ƀarke.*
1.SG.NOM know COMP Yusup slaughtered goat,
inko *ayša* *por-naa-wo.*
because Aysha tell-1.SG-PERF
'I know Yusup slaughtered a goat because Aysha told me so.'

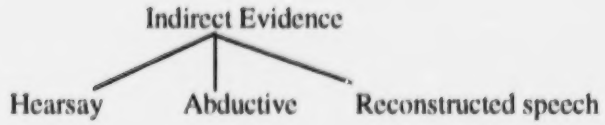
The purpose of the adverbial clauses introduced by *inko* 'because' in 53-57 is to specify the source of knowledge. When the source of knowledge is the speaker's personal experience (direct evidence), as in 53-55, we notice the absence of the complementizer. In 56 and 57, on the other hand, the presence of the complementizer coincides with hearsay evidence. We can safely state this generalization only if we couch it in terms of a tendency. Furthermore, when the source of knowledge is not specified, the unmarked case for a complex sentence with *mono* 'to know' entails complementizer presence, as in 58:

(58) *ita* *mono* *na* *isin* *karuu* *kom.*
3.F.SG.NOM know COMP 3.M.SG.NOM slaughtered cow
'She knows that he slaughtered a cow.'

The conjunction of the frequency facts that the complementizer is likely to be present when the source of knowledge is not specified (as in 58), and that the complementizer is likely to be absent when the source of knowledge is specified as direct (as in 53-55) suggests that these phenomena are not accidental. They suggest that the presence of a complementizer is not fully compatible with a direct-evidence interpretation.

6. CONCLUSIONS. I have shown in this paper that where modal contrasts are possible, complementizer or complement choice indicates a modal notion. In §2, with cognitive-utterance verbs, where there is only indirect speaker access to the conceptual content of the embedded proposition, the presence versus absence of *na* is meaningless. Here, *na* simply *mirrors* the semantics of the matrix verb to introduce de dicto embedded opaque contexts. Here, modal contrasts are not possible. Beginning with §3, we see constructional accomodation at work: The de dicto semantics associated with *na* in cognitive-utterance contexts "detaches" and *modulates* the semantics in other contexts. In §3, we saw that the presence of *na* after a verb of perception always indicates that the evidence for the described event is indirect. Direct evidence is indicated by a complementation type that entails the necessary absence of *na*. In §4, we saw that directly witnessed speech is presented as such by the absence of *na*. Reconstructed speech is presented by *na*. Nonquoted speech may of course be directly witnessed but is presented as reconstructed, not actually recorded by the speaker. With the verb 'to know' in §5, we saw that direct experience is not compatible with *na*. Knowledge that derives from indirect evidence (such as hearsay), however, is compatible with *na*.

Converging evidence has been provided from several independent domains (e.g. perception verbs, direct/indirect speech, the verb 'to know') to argue for the function of the Bolanci complementizer *na*. The indirect evidence signaled by *na* that we have adduced in this paper is of three types:



The unifying generalization about the function of *na* with all three types of indirect evidence is: *na* introduces propositional content that is not directly witnessed and that cannot be directly validated by the speaker. It is clear that the complementizer *na* in Bolanci is *not* a functor devoid of semantic content.

NOTES

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The bulk of the data discussed here comes from a corpus of several hundred simple and complex sentences collected by the author from about two dozen interviews conducted in 1991-2 with a native speaker of Bolanci. The main focus of the investigation surrounded a variety of issues in syntax and semantics. Work on this paper was supported in part by a fellowship from the President's Fund for the Humanities provided to Zygmunt Frajzyngier. To my knowledge, the following is an exhaustive review of studies available on Bolanci.

The most recent published work on Bolanci was done by Johannes Lukas (1969, 1970-72, 1971) in German. Lukas' work concentrates mainly on the phonology and the verbal system. Benton 1912 has a short grammatical sketch, and Meek 1931 is a wordlist. Among the known unpublished manuscripts, Schuh's 'The Bolanci verbal system' (1983a) and 'Bolanci genitives' (1983b) are the most recent. 'The Bolanci verbal system' is quite extensive in its coverage. Abraham (n.d.) has some field notes in the Kaduna archives at Bayero University College (Nigeria), including grammatical notes and a wordlist (Schuh, p.c.). Finally, there is a B.A. thesis which is a contrastive analysis of Bolanci and English but which doesn't have a lot of information on Bolanci per se (Schuh, p.c.). Awad 1993 is the only published study on Bolanci syntax.

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[1]Bolanci is a West Chadic language spoken in southwestern Borno State in northeastern Nigeria. Other names for this language are Bole and Bolewa.

[2]Bolanci is a tone language. To the best of my knowledge, the fact that I have not transcribed tone here does not affect the analysis or conclusions of this study. As far as I am aware, tone does not bear on the question of sentential complementation.

REFERENCES

Abraham, R. C. (no date). The Bolanci language and the conclusions to be drawn from it. Unpublished MS, Kaduna Archives, Bayero University College, Kano, Nigeria.

Awad, Maher. 1993. Two Bolanci complementizers: *ii* and *na*. Colorado Research in Linguistics, vol. 12, pp. 66-75. (Working papers available from the Dept. of Linguistics, Univ. of Colorado, Boulder 80309.)

Benton, Philip A. 1912. Notes on Bolanci. Languages and peoples of Bornu, vol. 1, Notes on some languages of western Sudan, pp. 4-37. Oxford: OUP. Republished 1968, London: Cass.

Bolinger, Dwight. 1968. Entailment and the meaning of structures. Glossa 2(2), 119-127.

Bolinger, Dwight. 1972. That's that. The Hague: Mouton.

Bresnan, Joan. 1979. Theory of complementation in English syntax. New York: Garland Publications. Originally published in 1972 as MIT dissertation.

Dirven, René. 1989. A cognitive perspective on complementation. Sentential complementation and the lexicon: Studies in honor of Wim de Geest, ed. by Dany Jaspers, Wim Klooster, Yvan Putseys, and Pieter Seuren, pp. 113-139. Dordrecht, Holland: Foris Publications.

Fauconnier, Gilles. 1985. Mental spaces: Aspects of meaning construction in natural language. Cambridge, MA: MIT Press.

Frajzyngier, Zygmunt. 1985. On two hypotheses regarding stativity. Relational typology, ed. by Frans Plank, pp. 61-88. Berlin: Mouton.

Frajzyngier, Zygmunt. 1987. Truth and the compositionality priniciple: A reply to Palmer. Studies in Language 11(1), 211-217.

Frajzyngier, Zygmunt and Robert Jasperson. 1991. That-clauses and other complements. Lingua 83, 133-153.

Frajzyngier, Zygmunt. 1991. De dicto domain in language. Approaches to grammaticalization, ed. by Elizabeth Closs Traugott and Bernd Heine, vol. 1, pp. 219-51. Amsterdam: John Benjamins.

Frajzyngier, Zygmunt. In press. A functional theory of complementizers. To appear in Mood and modality: Proceedings of the symposium on mood and modality, 1992, University of New Mexico, Albuquerque, ed. by Joan Bybee and Suzanne Fleischman. Amsterdam: Benjamins.

Givón, Talmy. 1980. The binding hierarchy and the typology of complements. Studies in Language 4(3), 333-377.

Kirsner, Robert and Sandra Thompson. 1976. The role of pragmatic inference in semantics: A study of sensory verb complements in English. Glossa 10(2), 200-240.

Langacker, Ronald. 1991. Foundations of cognitive grammar. Vol. 2 (Descriptive application). Stanford: Stanford Univ. Press.

Lukas, Johannes. 1969. Tonpermeable und tonimpermeable Konsonanten im Bolanci (Nordnigerien). In Ethnological and linguistic studies in honor of N. J. van Warmelo, Ethnological Publications, 52, 133-8. Pretoria: Department of Bantu Administration and Development.

Lukas, Johannes. 1970-72. Die Personalia und das primare Verb im Bolanci (Nordnigerien). Afrika und Ubersee 54.237-86, 55.114-39.

Lukas, Johannes. 1971. Über das erweiterte Verb im Bolanci (Nordnigerien). Journal of African Languages 10(1).1-14.

Lyons, John. 1977. Semantics. Cambridge: CUP.

Meek, Charles K. 1931. Tribal studies in northern Nigeria. 2 vols. London: Kegan Paul, Trench, Trubner.
Noonan, Michael. 1985. Complementation. Language typology and syntactic description, ed. by Timothy Shopen, vol. 2, pp. 42-140. Cambridge: CUP.
Palmer, Frank. 1986. Mood and modality. Cambridge: CUP.
Ransom, Evelyn. 1986. Complementation: Its meanings and forms. Amsterdam: Benjamins.
Rosenbaum, Peter. 1967. The grammar of English predicate complement constructions. Cambridge, MA: MIT Press.
Schuh, Russell. 1983a. The Bolanci verbal system. Unpublished MS, UCLA.
Schuh, Russell. 1983b. Bolanci genitives. Unpublished MS, UCLA.
Slobin, Dan and Ayhan Aksu. 1982. Tense, aspect, and modality in the use of the Turkish evidential.
Talmy, Leonard. 1987. The relation of grammar to cognition. Topics in cognitive linguistics, ed. by Brigida Rudzka-Ostyn. Amsterdam: Benjamins.
Taylor, Karen. 1991. Proto-Chadic sentential complementation after verbs of perception. Études Tchadiques: La phrase complexe, ed. by Herrmann Jungraithmayr and Henry Tourneux, pp. 73-84. Paris: Geuthner.
Wierzbicka, Anna. 1988. The semantics of grammar. Amsterdam: Benjamins.